Judges' Retirement System of Illinois

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions as of June 30, 2018

GRS Retirement Consulting

P: 312.456.9800 | F: 312.683.3271 | www.grsconsulting.com

November 14, 2018

The Board of Trustees
Judges' Retirement System of Illinois
Springfield, Illinois

Dear Board Members:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the Judges' Retirement System of Illinois ("JRS"). These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the Judges' Retirement System of Illinois ("JRS") only in its entirety and only with the permission of JRS.

Our valuation and projections assume the sponsor will make the contributions required by state statute. To the extent the sponsor does not make the statutory required contribution the results contained in this report could be significantly different.

This report is based upon information, furnished to us by JRS, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This information was checked for internal consistency, but it was not audited.

120 North LaSalle Street | Suite 1350 | Chicago, Illinois 60602-3495

This report complements the actuarial valuation report that was provided to JRS and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2018, for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the Judges' Retirement System of Illinois. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance J. Weiss and are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

By Alex Rivera

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

By Lance J. Weiss

Lance J. Weiss, EA, MAAA, FCA
Senior Consultant

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor’s review. Please let us know if the auditor recommends any changes.

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of June 30, 2018

		2018
Actuarial Valuation Date		June 30, 2018
Measurement Date of the Net Pension Liability		June 30, 2018
Plan's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 67		June 30, 2018
Employer's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 68		June 30, 2019
Membership		
Number of		
- Retirees and Beneficiaries		1,193
- Inactive, Nonretired Members		21
- Active Members		936
- Total		2,150
Covered Payroll[a]	$	132,064,855
Net Pension Liability		
Total Pension Liability	$	2,783,868,067
Plan Fiduciary Net Position		1,012,484,801
Net Pension Liability	$	1,771,383,266
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		36.37 %
Net Pension Liability as a Percentage of Covered Payroll		1,341.30 %
Development of the Single Discount Rate		
Single Discount Rate Beginning of Year		6.58 %
Single Discount Rate End of Year		6.60 %
Long-Term Expected Rate of Investment Return		6.75 %
Long-Term Municipal Bond Rate Beginning of Year[b]		3.56 %
Long-Term Municipal Bond Rate End of Year[b]		3.62 %
Last year ending June 30 in the 2018 to 2117 projection period for which projected benefit payments are fully funded		2063
Total Pension Expense for Fiscal Year End June 30, 2019	$	200,990,622

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses as of June 30, 2019

	Deferred Outflows of Resources		Deferred (Inflows) of Resources	
Difference between expected and actual non-investment experience	$	17,225,906	$	(850,721)
Changes in assumptions		53,794,902		(26,263,934)
Net difference between projected and actual earnings on pension plan investments		29,927,530		(29,655,019)
Total	$	100,948,338	$	(56,769,674)

[a] *Covered payroll is based on the requirements of GASB Statement No. 82.*

[b] *Source: The rates at the beginning and end of the year are the rates for fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2017, and June 29, 2018, respectively. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.*

Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to JRS subsequent to the measurement date of June 30, 2018.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience. The pension expense for fiscal year ending June 30, 2019, is based on the results of the actuarial valuation as of June 30, 2018.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Discussion

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The type of employees and number of members covered by the pension plan;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- The pension plan's fiduciary net position and the net pension liability;
- The net pension liability using a discount rate that is 1 percent higher and 1 percent lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan's Board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Discussion

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- A comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

General Implications of JRS Statutory Funding Policy on Future and Expected Plan Contributions and Funded Status

Given the plan's statutorily defined funding policy, if all actuarial assumptions are met (including the assumption of the plan earning 6.75 percent on the actuarial value of assets), then the following outcomes are expected:

1. The unfunded liability is not expected to be fully amortized during the lifetimes of the current members.
2. The funded status of the plan is expected to increase gradually towards a 90 percent funded ratio at 2045 and then remain level at 90 percent funded thereafter.

This statutory funding policy results in an expected crossover date in 2063 and a GASB Single Discount Rate of 6.60 percent to measure the total pension liability as of June 30, 2018. The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The GASB Statement No. 68 pension expense provided in this report is based on a measurement date of June 30, 2018, but will be used for fiscal year ending June 30, 2019.

The GASB Statement No. 68 pension expense for fiscal year ended June 30, 2018, is based on the results of the actuarial valuation as of June 30, 2017, and is provided in the June 30, 2017, GASB Statement Nos. 67 and 68 actuarial valuation report.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2018, and a measurement date of June 30, 2018.

Discussion

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.75 percent; the municipal bond rate is 3.62 percent (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 6.60 percent.

Effective Date and Transition

GASB Statements Nos. 67 and 68 are effective for fiscal years beginning after June 15, 2013, and June 15, 2014, respectively.

Recent Legislation

Public Act ("P.A.") 100-0023, effective July 6, 2017, modified the State's funding policy to include smoothing State contribution rate increases or decreases due to changes in actuarial assumptions, including investment return assumptions, over a five-year period in equal annual amounts beginning in fiscal year 2018. In addition, changes in actuarial or investment assumptions that increased or decreased the State contribution rate in fiscal years 2014 through 2017 are to be smoothed over a five-year period in equal annual amounts, applying only to the portion of the five-year phase-in that is applicable to fiscal years on and after 2018. The fiscal year 2018 State contribution was recertified, pursuant to P.A. 100-0023.

Changes in Actuarial Assumptions

The actuarial valuation results summarized in this report involve actuarial calculations that require assumptions about future events. Most of the actuarial assumptions used for the June 30, 2018, actuarial valuation are based on an experience review for the three-year period from July 1, 2012, through June 30, 2015. At the Board's request, GRS reviews economic assumptions on an annual basis. The economic assumptions reviewed include:

- Investment return assumption;
- General inflation; and
- Wage inflation and salary increases.

As a result of the 2018 economic assumption review, the Board approved the following changes to the economic assumptions to be used in the June 30, 2018, actuarial valuation:

- Reduced the general (price) inflation assumption from 2.75 percent to 2.50 percent; and
- Reduced the wage inflation assumption from 3.00 percent to 2.75 percent.

Discussion

Pursuant to Public Act 99-0232, JRS is required to conduct an actuarial experience review once every three years. Under this schedule, an experience review for the period from July 1, 2015, through June 30, 2018, will be performed after the June 30, 2018, actuarial valuation with expected implementation of the recommended assumptions beginning with the June 30, 2019, actuarial valuation.

A summary of the actuarial assumptions and methods used in this actuarial valuation are included in Section G of this report.

Section B

Financial Statements

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor’s review. Please let us know if the auditor recommends any changes.

Statement of Fiduciary Net Position Years Ended June 30, 2018, and 2017

	2018	2017
Assets		
Cash	$ 28,938,179	$ 25,657,962
Receivables		
Contributions:		
Participants	$ 7,438	$ 25,234
Employing state agencies	5,215,000	16,416,750
Other Accounts	197,349	181,355
Total Receivables	$ 5,419,787	$ 16,623,339
Investments		
Held in the Illinois State Board of Investment		
Commingled Fund at fair value	$ 978,196,836	$ 899,652,118
Securities lending collateral with State Treasurer	12,439,000	9,643,000
Total Investments	$ 990,635,836	$ 909,295,118
Capital assets, net of accumulated depreciation	$ 70,481	$ 55,839
Total Assets	$ 1,025,064,283	$ 951,632,258
Liabilities		
Payables		
Benefits payable	$ 17,290	$ -
Refunds payable	13,270	47,002
Administrative expenses payable	109,922	138,724
Participants' deferred service credit accounts	-	-
Due to State of Illinois	-	-
Securities lending collateral with State Treasurer	12,439,000	9,643,000
Total Liabilities	$ 12,579,482	$ 9,828,726
Net Position Restricted for Pensions	$ 1,012,484,801	$ 941,803,532

Statement of Changes in Fiduciary Net Position Years Ended June 30, 2018, and 2017

	2018	2017
Additions		
Contributions		
Participants	$ 14,295,562	$ 14,770,467
Employing state agencies and appropriations	135,962,000	131,334,000
Total Contributions	$ 150,257,562	$ 146,104,467
Investment Income		
Net investments income	$ 19,629,664	$ 19,881,567
Interest earned on cash balances	504,929	320,522
Net appreciation in fair value of investments	49,815,053	77,594,390
Net Investment Income	$ 69,949,646	$ 97,796,479
Total Additions	$ 220,207,208	$ 243,900,946
Deductions		
Benefits		
Retirement annuities	$ 122,966,147	$ 116,611,033
Survivors' annuities	25,140,113	23,845,754
Disability benefits	40,678	40,417
Lump-sum benefits	-	-
Total Benefits	$ 148,146,938	$ 140,497,204
Refunds	481,716	974,665
Administrative	897,285	914,405
Total Deductions	$ 149,525,939	$ 142,386,274
Net Increase in Net Position	$ 70,681,269	$ 101,514,672
Net Position Restricted for Pensions		
Beginning of Year	$ 941,803,532	$ 840,288,860
End of Year	$ 1,012,484,801	$ 941,803,532

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Judges' Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios – Multiyear

Fiscal year ending June 30,	2018	2017	2016	2015	2014	2013
Total Pension Liability						
Service Cost Including Pension Plan Administrative Expense	$ 53,221,872	$ 56,166,214	$ 58,041,274	$ 59,619,744	$ 57,138,961	
Interest on the Total Pension Liability	175,399,302	168,163,770	158,611,299	151,431,750	145,993,903	
Changes of Benefit Terms	-	-	-	-	-	
Difference between Expected and Actual Experience	6,190,925	23,042,316	(3,260,012)	28,713,856	4,490,010	
Changes of Assumptions	(14,445,948)	(29,511,474)	205,404,829	9,482,302	-	
Benefit Payments	(148,146,938)	(140,497,204)	(132,571,796)	(125,654,349)	(118,590,965)	
Refunds of Employee Contributions	(481,716)	(974,665)	(658,051)	(945,807)	(687,923)	
Pension Plan Administrative Expense	(897,285)	(914,405)	(942,950)	(982,656)	(831,652)	
Net Change in Total Pension Liability	70,840,212	75,474,552	284,624,593	121,664,840	87,512,334	
Total Pension Liability - Beginning	2,713,027,855	2,637,553,303	2,352,928,710	2,231,263,870	2,143,751,536	
Total Pension Liability - Ending (a)	$ 2,783,868,067	$ 2,713,027,855	$ 2,637,553,303	$ 2,352,928,710	$ 2,231,263,870	
Plan Fiduciary Net Position						
Employer Contributions	$ 135,962,000	$ 131,334,000	$ 132,060,000	$ 134,039,684	$ 126,815,881	
Employee Contributions	14,295,562	14,770,467	14,962,055	15,431,105	15,918,732	
Pension Plan Net Investment Income	69,949,646	97,796,479	(6,470,553)	36,009,150	110,058,987	
Benefit Payments	(148,146,938)	(140,497,204)	(132,571,796)	(125,654,349)	(118,590,965)	
Refunds of Employee Contributions	(481,716)	(974,665)	(658,051)	(945,807)	(687,923)	
Pension Plan Administrative Expense	(897,285)	(914,405)	(942,950)	(982,656)	(831,652)	
Other	-	-	-	-	-	
Net Change in Plan Fiduciary Net Position	70,681,269	101,514,672	6,378,705	57,897,127	132,683,060	
Plan Fiduciary Net Position - Beginning	941,803,532	840,288,860	833,910,155	776,013,028	643,329,968	
Plan Fiduciary Net Position - Ending (b)	1,012,484,801	941,803,532	840,288,860	833,910,155	776,013,028	
Net Pension Liability - Ending (a) - (b)	$ 1,771,383,266	$ 1,771,224,323	$ 1,797,264,443	$ 1,519,018,555	$ 1,455,250,842	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	36.37 %	34.71 %	31.86 %	35.44 %	34.78 %	
Covered-Employee Payroll[a]	$ 132,064,855	$139,737,508	$139,537,967	$145,903,074	$150,280,023	
Net Pension Liability as a Percentage of Covered-Employee Payroll	1,341.30 %	1,267.54 %	1,288.01 %	1,041.11 %	968.36 %	
Single Discount Rate, Beginning of Year	6.58 %	6.48 %	6.85 %	6.89 %	6.91 %	
Single Discount Rate, End of Year	6.60 %	6.58 %	6.48 %	6.85 %	6.89 %	6.91 %
Long-Term Municipal Bond Rate	3.62 %	3.56 %	2.85 %	3.80 %	4.29 %	4.63 %
Long-Term Municipal Bond Rate Date	June 29, 2018	June 30, 2017	June 30, 2016	June 25, 2015	June 26, 2014	June 27, 2013

[a]*Covered payroll is based on the requirements of GASB Statement No. 82.*
10 fiscal years will be built prospectively.

Schedules of Required Supplementary Information
Schedule of the Net Liability Multiyear

Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll[a]	Net Pension Liability as a % of Covered Payroll
2014	$ 2,231,263,870	$ 776,013,028	$ 1,455,250,842	34.78 %	$ 150,280,023	968.36 %
2015	2,352,928,710	833,910,155	1,519,018,555	35.44 %	145,903,074	1,041.11 %
2016	2,637,553,303	840,288,860	1,797,264,443	31.86 %	139,537,967	1,288.01 %
2017	2,713,027,855	941,803,532	1,771,224,323	34.71 %	139,737,508	1,267.54 %
2018	2,783,868,067	1,012,484,801	1,771,383,266	36.37 %	132,064,855	1,341.30 %

[a]*Covered payroll is based on the requirements of GASB Statement No. 82.*

Schedules of Required Supplementary Information
Schedule of Contributions Multiyear

Last 10 Fiscal Years

Fiscal Year	Actuarially Determined Contribution[a]	Actual Contribution[b]	Contribution Deficiency (Excess)	Covered Payroll[c]	Actual Contribution as a % of Covered Payroll	Statutory Contribution	Statutory Contribution Deficiency/(Excess)
7/1/08 - 6/30/09	$ 78,386,597	$ 59,983,000	$ 18,403,597	$ 155,645,000	38.54%	$ 59,983,000	$ -
7/1/09 - 6/30/10	86,916,418	78,509,810	8,406,608	161,164,000	48.71%	78,832,000	322,190
7/1/10 - 6/30/11	95,490,182	62,694,460	32,795,722	169,155,000	37.06%	62,377,000	(317,460)
7/1/11 - 6/30/12	110,923,357	63,644,099	47,279,258	153,550,766	41.45%	63,628,000	(16,099)
7/1/12 - 6/30/13	125,576,795	88,239,564	37,337,231	156,142,183	56.51%	88,210,000	(29,564)
7/1/13 - 6/30/14	125,061,595	126,815,881	(1,754,286)	150,280,023	84.39%	126,808,000	(7,881)
7/1/14 - 6/30/15	124,215,990	134,039,684	(9,823,694)	145,903,074	91.87%	133,982,000	(57,684)
7/1/15 - 6/30/16	121,362,703	132,060,000	(10,697,297)	139,537,967	94.64%	132,060,000	-
7/1/16 - 6/30/17	152,699,188	131,334,000	21,365,188	139,737,508	93.99%	131,334,000	-
7/1/17 - 6/30/18	168,056,916	135,962,000	32,094,916	132,064,855	102.95%	135,962,000	-

[a] *The JRS Statutory Funding may not conform to Actuarial Standards of Practice, therefore, the actuarially determined contribution is equal to the normal cost plus an amount to amortize the unfunded actuarial accrued liability as a level percentage of total payroll. The amortization period for fiscal years 2009 through 2016 is an open 30-year period, and a closed 25-year period for fiscal years on and after 2017. The Actuarially Determined Contribution for each fiscal year was determined as of the valuation two years prior.*

[b] *The actual contributions for FYE 6/30/2009 through 6/30/2017 were obtained from the System's comprehensive annual financial reports. The actual contribution for FYE 6/30/2018 was provided by the System.*

[c] *Covered payroll for fiscal years on and after June 30, 2012, were restated to comply with the requirements of GASB Statement No. 82. For fiscal years prior to June 30, 2012, covered payroll was not restated to comply with the requirements of GASB Statement No. 82 due to system limitations.*

Schedules of Required Supplementary Information
Notes to Schedule of Contributions

Actuarial Valuation Date:	June 30, 2018
Notes	Actuarially determined contribution rates and Statutory contribution rates are calculated as of June 30, which is 12 months prior to the beginning of the fiscal year in which the contributions will be made.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	**Statutory Contributions** — The Statutory Contribution is equal to the level percentage of pay contributions determined so that the Plan attains a 90 percent funded ratio by the end of 2045. An amortization payment is not directly calculated. The amortization payment is the difference between the total statutory contribution and the employer normal cost contribution. **Actuarially Determined Contributions** — The Actuarially Determined Contribution is equal to the employer's normal cost plus a level percent of capped payroll amortization of the unfunded accrued liability. The amortization period for fiscal years 2006 through 2016 is an open-period 30 years. The Board has adopted a policy to calculate the ADC for financial reporting purposes, effective for the actuarial valuation as of June 30, 2015. Under this policy, the ADC for fiscal years ending on and after June 30, 2017, is calculated as the employer's normal cost plus a 25-year level percent of capped payroll closed-period amortization of the unfunded accrued liability. As of June 30, 2018, the remaining amortization period is 22 years.
Asset Valuation Method	5-year smoothed market
Inflation	2.50 percent
Salary Increases	Salary increase rates based on age-related productivity and merit rates plus inflation.
Postretirement Benefit Increases	Postretirement benefit increases of 3.00 percent, compounded, for Tier 1 and 3.00 percent or one-half of the annual increase in the Consumer Price Index, whichever is less, simple, for Tier 2.
Investment Rate of Return	6.75 percent as of the June 30, 2018, valuation.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the June 30, 2016, actuarial valuation pursuant to an experience study of the period July 1, 2012 to June 30, 2015.
Mortality	For post-retirement, RP-2014 White Collar Healthy Annuitant mortality table, sex distinct, with rates set forward one year for males and set back one year for females and generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales. For pre-retirement, RP-2014 White Collar Total Employee mortality table, sex distinct, and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales.

Other Information:

Notes	The statutory contribution for fiscal year ending June 30, 2018, was determined based on the results of the June 30, 2016, actuarial valuation. Similarly, the statutory contributions for fiscal years ending June 30, 2019, and June 30, 2020, were determined based on the results of the actuarial valuations performed two years prior. All other contributions are projected using current assumptions.

Methods and Assumptions Used for Accounting Purposes as of the Valuation Date:

Actuarial Cost Method	Entry Age Normal
Discount Rate	6.58 percent as of the June 30, 2017, actuarial valuation. 6.60 percent as of the June 30, 2018, actuarial valuation.
Asset Valuation Method	Market value

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor’s review. Please let us know if the auditor recommends any changes.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumptions

Single Discount Rate

A Single Discount Rate of 6.60 percent was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of 6.75 percent and a municipal bond rate of 3.62 percent. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between statutory contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2063. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2063, and the municipal bond rate was applied to all benefit payments after that date.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.60 percent, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 5.60%	Current Single Discount Rate Assumption 6.60%	1% Increase 7.60%
$ 2,095,210,163	$ 1,771,383,266	$ 1,498,870,169

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,193
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	21
Active Plan Members	936
Total Plan Members	2,150

Additional information about the member data used is included in the June 30, 2018, actuarial valuation report.

SECTION E

GASB STATEMENT NO. 68 PENSION EXPENSE

Schedule of Changes in Net Pension Liability and Related Ratios

Fiscal year End 6/30	2018	2017
A. Total Pension Liability		
1. Service Cost Including Pension Plan Administrative Expense	$ 53,221,872	$ 56,166,214
2. Interest on the Total Pension Liability	175,399,302	168,163,770
3. Changes of Benefit Terms	-	-
4. Difference Between Expected and Actual Experience of the Total Pension Liability	6,190,925	23,042,316
5. Changes of Assumptions	(14,445,948)	(29,511,474)
6. Benefit Payments, Including Refunds of Employee Contributions	(148,628,654)	(141,471,869)
7. Pension Plan Administrative Expense	(897,285)	(914,405)
8. Net Change in Total Pension Liability	**$ 70,840,212**	**$ 75,474,552**
9. Total Pension Liability – Beginning	**2,713,027,855**	**2,637,553,303**
10. Total Pension Liability – Ending	**$ 2,783,868,067**	**$ 2,713,027,855**
B. Plan Fiduciary Net Position		
1. Contributions – Employer	$ 135,962,000	$ 131,334,000
2. Contributions – Employee	14,295,562	14,770,467
3. Net Investment Income	69,949,646	97,796,479
4. Benefit Payments, Including Refunds of Employee Contributions	(148,628,654)	(141,471,869)
5. Pension Plan Administrative Expense	(897,285)	(914,405)
6. Other	-	-
7. Net Change in Plan Fiduciary Net Position	**$ 70,681,269**	**$ 101,514,672**
8. Plan Fiduciary Net Position – Beginning	**941,803,532**	**840,288,860**
9. Plan Fiduciary Net Position – Ending	**$ 1,012,484,801**	**$ 941,803,532**
C. Net Pension Liability	**$ 1,771,383,266**	**$ 1,771,224,323**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	**36.37%**	**34.71%**
E. Covered-Employee Payroll[a]	**$ 132,064,855**	**$ 139,737,508**
F. Net Pension Liability as a Percentage of Covered-Employee Payroll	**1341.30%**	**1267.54%**

[a]*Covered payroll is based on the requirements of GASB Statement No. 82.*

Pension Expense under GASB Statement No. 68
Plan Year Ended June 30, 2018,
Applicable to Fiscal Year Ending June 30, 2019

A. Expense		
1. Service Cost Including Pension Plan Administrative Expense	$	53,221,872
2. Interest on the Total Pension Liability		175,399,302
3. Current-Period Benefit Changes		-
4. Employee Contributions (made negative for addition here)		(14,295,562)
5. Projected Earnings on Plan Investments (made negative for addition here)		(63,596,028)
7. Other Changes in Plan Fiduciary Net Position		-
8. Recognition of Outflow/(Inflow) of Resources due to Liabilities		13,360,503
9. Recognition of Outflow/(Inflow) of Resources due to Assumption Changes		42,341,201
10. Recognition of Outflow/(Inflow) of Resources due to Assets		(5,440,666)
11. Total Pension Expense	**$**	**200,990,622**
B. Reconciliation of Net Pension Liability		
1. Net Pension Liability Beginning of Year	**$**	**1,771,224,323**
2. Total Pension Expense		200,990,622
3. Employer Contributions (made negative for addition here)		(135,962,000)
4. Change in Deferred Liability Experience (Inflows)/Outflows		(7,169,578)
5. Change in Deferred Assumption Changes Experience (Inflows)/Outflows		(56,787,149)
6. Change in Deferred Investment Experience (Inflows)/Outflows		(912,952)
7. Net Pension Liability End of Year	**$**	**1,771,383,266**

The pension expense is based on a measurement date of June 30, 2018, but will be used for fiscal year ending June 30, 2019. Our understanding is that JRS is a single employer defined benefit pension plan. If the sponsor has component units, a proportionate share allocation of the pension expense and net pension liability under paragraph 342 of GASB Statement No. 68 may be required.

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Plan Year Ended June 30, 2018*

A. Outflows and (Inflows) of Resources Recognized in Current and Future Pension Expenses as of Plan Year End June 30, 2018

Experience (Gain)/Loss	Original Balance	Date Established	Original Recognition Period/ Amortization Factor	Amount Recognized in Past Pension Expenses	Amount Recognized in Current Pension Expense	Deferred (Inflows) to be Recognized in Future Pension Expenses	Deferred Outflows to be Recognized in Future Pension Expenses
1. Differences Between Expected	$ 6,190,925	June 30, 2018	4.1622	$ -	$ 1,487,416	$ -	$ 4,703,508
and Actual Non-Investment Experience	23,042,316	June 30, 2017	4.1499	5,552,499	5,552,499	-	11,937,318
	(3,260,012)	June 30, 2016	4.0593	(1,606,194)	(803,097)	(850,721)	-
	28,713,856	June 30, 2015	4.0832	21,096,582	7,032,194	-	585,080
	4,490,010	June 30, 2014	4.0832	4,398,520	91,490	-	-
	$ 59,177,095		4.1076	$ 29,441,407	$ 13,360,503	$ (850,721)	$ 17,225,906
2. Assumption Changes	$ (14,445,948)	June 30, 2018	4.1622	$ -	$ (3,470,748)	$ (10,975,200)	$ -
	(29,511,474)	June 30, 2017	4.1499	(7,111,370)	(7,111,370)	(15,288,734)	-
	205,404,829	June 30, 2016	4.0593	101,202,094	50,601,047	-	53,601,688
	9,482,302	June 30, 2015	4.0832	6,966,816	2,322,272	-	193,214
	-	June 30, 2014	4.0832	-	-	-	-
	$ 170,929,709		4.1076	$ 101,057,540	$ 42,341,201	$ (26,263,934)	$ 53,794,902
3. Difference Between Expected	$ (6,353,618)	June 30, 2018	5.0000	$ -	$ (1,270,724)	$ (5,082,894)	$ -
and Actual Investment Earnings	(40,953,541)	June 30, 2017	5.0000	(8,190,708)	(8,190,708)	(24,572,125)	-
	65,286,382	June 30, 2016	5.0000	26,114,552	13,057,276	-	26,114,554
	19,064,884	June 30, 2015	5.0000	11,438,931	3,812,977	-	3,812,976
	(64,247,439)	June 30, 2014	5.0000	(51,397,952)	(12,849,487)	-	-
	$ (27,203,332)		5.0000	$ (22,035,177)	$ (5,440,666)	$ (29,655,019)	$ 29,927,530
4. Total	**$ 202,903,472**			**$ 108,463,770**	**$ 50,261,038**	**$ (56,769,674)**	**$ 100,948,338**

B. Deferred Outflows and Deferred (Inflows) of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Differences Between Expected and Actual Non-Investment Experience	Assumption Changes	Differences Between Expected and Actual Investment Experience
2019	$ 6,821,898	$ 40,212,142	$ 7,408,821
2020	6,992,291	(7,581,477)	3,595,845
2021	2,319,736	(4,536,742)	(9,461,432)
2022	241,259	(562,955)	(1,270,724)
2023	-	-	-
Thereafter	-	-	-
Total	**$ 16,375,185**	**$ 27,530,968**	**$ 272,511**

Year Ending June 30	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Deferred Outflows/ (Inflows) of Resources
2019	$ 75,289,508	$ (20,846,647)	$ 54,442,861
2020	23,097,834	(20,091,174)	3,006,660
2021	2,319,736	(13,998,174)	(11,678,438)
2022	241,259	(1,833,678)	(1,592,419)
2023	-	-	-
Thereafter	-	-	-
Total	**$ 100,948,338**	**$ (56,769,673)**	**$ 44,178,664**

**Based on a measurement date of June 30, 2018, but will be used for fiscal year ending June 30, 2019. Employer's proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report.*

Numbers may not add due to rounding.

SECTION F

SUMMARY OF RETIREMENT SYSTEM PLAN PROVISIONS

Summary of Retirement System Plan Provisions
(as of June 30, 2018)

1. Participation. Participation in the system is mandatory when a person first becomes a judge, unless an “Election Not to Participate” is filed by the judge within 30 days of the date of notification of this option.

2. Member Contributions. All members of the system are required to contribute to the system the following percentage of their salaries:

Retirement Annuity	7.5 percent
Automatic Annuity Increase	1.0
Survivor's Annuity	2.5
Total	11.0 percent

   All judges who become participants after December 31, 1992, are required to make contributions toward the survivor's annuity unless they file an election not to participate in the survivor's annuity benefit, in which case the total participant contribution rate is 8.5 percent of salary.

3. Discontinuance of Contributions. A participant who becomes eligible to receive the maximum rate of annuity may elect to discontinue contributions and have his or her benefits “fixed” based upon the final rate of salary immediately prior to the effective date of such election. This election, once made, is irrevocable.

4. Election to Contribute Only on Increases in Salary. A participant who has attained age 60 and continues to serve as a judge after becoming eligible to receive the maximum rate of annuity and has not elected to discontinue contributing to the system may elect to make contributions based only on the amount of the increases in salary received by the judge on or after the date of the election.

5. Retirement Annuity – Eligibility. A judge who has at least 10 years of service may retire with an unreduced retirement annuity upon attainment of age 60. A judge with at least 6 years of service may retire with an unreduced retirement annuity upon attainment of age 62.

   A judge with at least 10 years of service may retire upon attainment of age 55, with the amount of the retirement annuity reduced 1/2 of 1 percent for each month that the judge is under age 60 if the judge has less than 28 years of service. This penalty for retirement before age 60 is reduced by 5/12 of 1 percent for every month of service in the System in excess of 20 years.

6. Retirement Annuity – Amount. The retirement annuity is determined according to the following formula based upon the final rate of salary:
   - 3 ½ percent for each of the first 10 years of service; plus
   - 5 percent for each year of service in excess of 10

   The maximum retirement annuity is 85 percent of the final rate of salary.

7. Automatic Increase In Retirement Annuity. Annual automatic increases of 3 percent of the current amount of retirement annuity are provided. The initial increase is effective in the month of January of the year next following the year in which the first anniversary of retirement occurs.

8. Temporary Total Disability. A member with at least 2 years of service who becomes totally disabled and unable to perform his or her duties as a judge is entitled to a temporary disability benefit equal to 50 percent of salary payable during the period of disability but not beyond the end of the term of office.

9. Total and Permanent Disability. A member with at least 10 years of service who becomes totally and permanently disabled while serving as a judge is eligible to commence receiving his or her retirement annuity without reduction regardless of age.

10. Survivor's Annuity – Participation and Eligibility. A married judge, an unmarried judge who becomes a participant after December 31, 1992, or a judge who marries after becoming a participant is subject to the provisions relating to the survivor's annuity unless he or she files a written notice of election not to participate in the survivor's annuity.

    An active judge who is not contributing for the survivor's annuity and later marries or remarries may receive partial credit for the survivor's annuity thereby providing a prorated benefit for his or her spouse by contributing to the survivor's annuity benefit prospectively from the date of marriage.

    A surviving spouse without children is eligible for survivor benefits at age 50 or over provided marriage to the member had been in effect for at least one year immediately prior to the member's death.

    A surviving spouse with unmarried eligible children of the member is eligible for a survivor's annuity benefit at any age provided the above marriage requirements have been met. When all children are disqualified because of death, marriage or attainment of age 18, or age 22 in the case of a full-time student, the spouse's benefit is suspended if the spouse is under age 50 until the attainment of such age.

    Children of the member who are under age 18 or under age 22 and a full-time student or who are over age 18 and dependent because of a physical or mental disability are eligible for survivor benefits. Legally adopted children are eligible for survivor benefits on the same basis as other children.

    If the member dies in service as a judge, the member must have at least 1 1/2 years of service credit for survivor's annuity eligibility. If death occurs after termination of service, the deceased member must have at least 10 years of service credit for survivor's annuity eligibility.

11. Survivor's Annuity – Amount. (a) Upon the death of an annuitant, his or her surviving spouse shall be entitled to a survivor's annuity of 66-2/3 percent of the annuity the annuitant was receiving immediately prior to his or her death.

    (b) Upon the death of a judge while in service, the surviving spouse shall receive a survivor's annuity of 66-2/3 percent of the annuity earned by the judge as of the date of death, or 7 ½ percent of the judge's last salary, whichever is greater.

(c) Upon the death of a former judge who had terminated service with at least 10 years of service, his or her surviving spouse shall be entitled to a survivor's annuity of 66-2/3 percent of the annuity earned by the deceased member as of the date of death.

(d) Upon the death of an annuitant, a judge in service, or a former judge who had terminated service with at least 10 years of service, each surviving child unmarried and under the age of 18, or age 22 in the case of a full-time student, or disabled shall be entitled to a child's annuity in an amount equal to 5 percent of the decedent's final salary, not to exceed in total for all such children the greater of 20 percent of final salary or 66-2/3 percent of the earned retirement annuity.

(e) Survivor's annuities are subject to annual automatic increases of 3 percent of the current amount of annuity.

12. Refund of Contributions. A participant who ceases to be a judge may apply for and receive a refund of his or her total contributions to the system, provided he or she is not then eligible to receive a retirement annuity.

    A participant who becomes unmarried, either before or after retirement, is entitled to a refund of contributions made for the survivor's annuity.

Judges Who First Become Participants on or after January 1, 2011 ("Tier 2")

The following changes to the above provisions apply to judges who first become participants on or after January 1, 2011:

1. The highest salary for annuity purposes is equal to the average monthly salary obtained by dividing the participant's total salary during the 96 consecutive months of service within the last 120 months of service in which the total compensation was the highest by the number of months in that period.

2. The required contributions shall not exceed the contributions that would be due on the highest salary for annuity purposes.

3. For 2011, the final average salary is limited to the Social Security wage base of $106,800. Limitations for future years shall automatically be increased or decreased, as applicable, by a percentage change in the Consumer Price Index-U during the preceding 12-month calendar year.

4. A participant is eligible to retire with unreduced benefits after attainment of age 67 with at least 8 years of service credit. However, a participant may elect to retire at age 62 with at least 8 years of service credit and receive a retirement annuity reduced by one-half of 1 percent for each month that his or her age is under 67.

5. The annual retirement annuity provided is equal to 3 percent of the participant's final average salary for each year of service. The maximum retirement annuity payable shall be 60 percent of the participant's final average salary.

6. Automatic annual increases are provided in the retirement annuity then being paid equal to 3 percent or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable in the January next following attainment of age 67 and in January of each year thereafter.

7. Automatic annual increases are provided in the survivor annuity then being paid equal to 3 percent or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable on each January 1 occurring on or after attainment of age 67.

8. The retirement annuity being paid is suspended when an annuitant accepts full time employment in a position covered under the Judges' Retirement System or any other article of the Illinois Pension Code. Upon termination of the employment, the retirement annuity shall resume and, if appropriate, be recalculated.

9. Salary and COLA development for members hired on or after January 1, 2011, are shown in the table below:

Year Ending	CPI-U	COLA	Maximum Annual Pensionable Earnings
2011		3.00%	$106,800.00
2012	3.90%	3.00%	$110,004.00
2013	2.00%	2.00%	$112,204.08
2014	1.20%	1.20%	$113,550.53
2015	1.70%	1.70%	$115,480.89
2016	0.00%	0.00%	$115,480.89
2017	1.50%	1.50%	$117,213.10
2018	2.20%	2.20%	$119,791.79

SECTION G

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Valuation Methods — Calculation of the Total Pension Liability

Actuarial Cost Method – Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

(i) The annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) Each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Valuation Methods — Calculation of the Statutory Contributions, Actuarial Cost Method Adopted June 30, 1989, by Statute

The projected unit credit normal cost method is used. Under this method, the projected pension at retirement age is first calculated and the value thereof at the individual member's current or attained age is determined. The normal cost for the member for the current year is equal to the value so determined divided by the member's projected service at retirement. The normal cost for the plan for the year is the sum of the individual normal costs.

The actuarial liability at any point in time is the value of the projected pensions at that time less the value of future normal costs.

For ancillary benefits for active members, in particular death and survivor benefits, termination benefits, and the postretirement increases, the same procedure as outlined above is followed.

Estimated annual administrative expenses are added to the normal cost.

For valuation purposes, as well as projection purposes, an actuarial value of assets is used.

Appropriation Requirements Under P.A. 88-0593

The law governing the System under P.A. 88-0593 provides that:

For fiscal years 2011 through 2045, the minimum contribution to the System for each fiscal year shall be an amount determined to be sufficient to cause the total assets of the System to equal 90 percent of the total actuarial liabilities of the System by the end of fiscal year 2045. In making these determinations, the required contribution shall be calculated each year as a level-percentage-of-payroll over the years remaining to and including fiscal year 2045 and shall be determined under the projected unit credit actuarial cost method. For fiscal years 1997 through 2010, the minimum contribution to the System, as a percentage of the payroll, shall be increased in equal annual increments so that by fiscal year 2010, the contribution rate is at the same level as the contribution rate for fiscal years 2011 through 2045.

Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions and Experience Studies

Most Actuarial Assumptions Adopted June 30, 2016

Actuarial assumptions are set by the Board of Trustees. Additional information regarding the rationale for the assumptions may be found in the experience review of the Judges' Retirement System for the three-year period ending June 30, 2015, and the 2018 economic assumption review. All actuarial assumptions are expectations of future experience, not market measures

Mortality

Post-Retirement Mortality

RP-2014 White Collar Total Healthy Annuitant mortality table, sex distinct, with rates set forward one year for males and set back one year for females and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

Pre-Retirement Mortality, including terminated vested members prior to attaining age 50

RP-2014 White Collar Total Employee mortality table, sex distinct and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales recently released by the SOA, to reflect that experience shows active members having lower mortality rates than retirees of the same age.

Interest

6.75 percent per year, compounded annually, net of investment expenses.

General Inflation

2.50 percent per year, compounded annually.

This assumption serves as the basis for the determination of Tier 2 pay cap growth and annual increases that are equal to the lesser of 3.0 percent or the annual change in the Consumer Price Index-U during the preceding 12-month calendar year.

Marriage Assumption

75.0 percent of active and retired participants are assumed to be married.

Termination

Illustrative rates of withdrawal from the plan are as follows:

Age Based Withdrawal		
Age	Male	Female
30	0.0175	0.0175
35	0.0170	0.0160
40	0.0154	0.0144
45	0.0136	0.0126
50	0.0118	0.0108
55	0.0102	0.0092
60	0.0084	0.0074
65	0.0067	0.0057

It is assumed that terminated employees will not be rehired. The rates apply only to employees who have not fulfilled the service requirement necessary for retirement at any given age.

Salary Increases

A salary increase assumption of 2.75 percent per year, compounded annually, was used. This 2.75 percent salary increase assumption includes an inflation component of 2.50 percent per year, and a productivity/merit/promotion component of 0.25 percent.

Disability

No assumption for disability.

Employee Contribution Election

For purposes of the actuarial valuation, it is assumed that all judges elect to contribute only on increases in salary when they become eligible for this provision.

Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions and Experience Studies

Population Projection

For purposes of determining annual appropriation as a percent of total covered payroll, the size of the active group is assumed to remain level at the number of actives as of the actuarial valuation date. New entrants are assumed to enter with an average age and average pay as disclosed below. The new entrant profile is based on the averages for all current active members. The average increase in uncapped payroll for the projection period is 2.75 percent per year.

New Entrant Profile			
Age Group	No.	Uncapped Salary	Capped Salary
Under 20			
20-24			
25-29	1	$ 198,075	$ 119,792
30-34	29	5,925,100	3,473,962
35-39	103	20,335,519	12,338,554
40-44	204	39,729,543	24,437,525
45-49	211	41,231,482	25,276,068
50-54	171	33,194,626	20,484,396
55-59	118	22,926,939	14,135,431
60-64	50	9,737,178	5,989,590
65-69	3	584,321	359,375
70 & Over			
Total	**890**	**$ 173,862,783**	**$ 106,614,693**
Avg. Salary		**$ 195,351**	**$ 119,792**
Avg. Age			**47.35**
Percent Male			**67.87%**

Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions and Experience Studies

Retirement

Employees are assumed to retire in accordance with the rates shown on the following page. The rates apply only to employees who have fulfilled the service requirement necessary for retirement at any given age.

Retirement Rates	
Age	Males & Females
60	15.00%
61-65	10.00%
66-70	11.00%
71	11.00%
72	12.00%
73	13.00%
74	14.00%
75-79	15.00%
80+	100.00%

Early Retirement Rates		
Age	Male	Female
55	6.50%	7.50%
56	6.50%	7.50%
57	6.50%	7.50%
58	6.50%	7.50%
59	6.50%	7.50%

Assets

The Fiduciary Net Position is used for GASB reporting purposes. The asset valuation method is to project contributions is prescribed by statute, a description for this method can be found in the June 30, 2018, actuarial valuation report.

Expenses

As estimated and advised by JRS staff, based on current expenses and expected to increase in relation to the projected capped payroll. Expenses are included in the service cost.

Spouse's Age

The female spouse is assumed to be four years younger than the male spouse.

Decrement Timing

All decrements are assumed to occur beginning of year.

Decrement Relativity

Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Decrement Operation

Turnover decrements do not operate after member reaches retirement eligibility.

Eligibility Testing

Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.

415(b) and 401(a)(17) Limits

No explicit assumption is made with respect to these items.

Assumptions as a result of Public Act 96-0889 – Tier 2 Assumptions

Members hired after December 31, 2010, are assumed to make contributions on salary up to the final average compensation cap in a given year until this plan provision or administrative procedure is clarified. State contributions, expressed as a percentage of pay, are calculated based upon capped pay.

Retirement rates for Tier 2 members to account for the change in retirement age, as follows:

Retirement Rates for Tier Two Members	
Age	Male & Female
67	30.00%
68-70	13.00%
71	11.00%
72	12.00%
73	13.00%
74	14.00%
75-79	15.00%
80	100.00%

Early Retirement Rates for Tier Two Members	
Age	Males and Females
62	11.00%
63	12.00%
64	13.00%
65	14.00%
66	15.00%

Illustrative rates of withdrawal from the plan for Tier 2 members are as follows:

Age Based Withdrawal for Tier Two Members		
Age	Male	Female
30	0.0175	0.0175
35	0.0170	0.0160
40	0.0154	0.0144
45	0.0136	0.0126
50	0.0118	0.0108
55	0.0102	0.0092
60	0.0084	0.0074
65	0.0067	0.0057

The preceding withdrawal rates for Tier 2 members are the same as the rates for Tier 1 members.

For Tier 2 members with less than five years of service, withdrawal rates are flat at 1.75 percent.

Projection Methodology and Appropriation Requirements under P.A. 93-0002, P.A. 94-0004, P.A. 96-0043 and P.A. 100-0023

State Contributions under P.A. 93-0002

In general, for each year during the life of the GOB program, the state contributions to the System are to be calculated as follows:

1. Calculation of the contribution maximum
   a. A projection of contributions will be made from the valuation date to June 30, 2045. Such projection will be based on hypothetical asset values determined using the following assumptions:
      i) That the System had received no portion of the general obligation bond proceeds in excess of the scheduled contributions for the remainder of fiscal 2003 and for the entirety of 2004,
      ii) That hypothetical state contributions had been made each fiscal year from 2005 through the valuation date, based on the funding process in place prior to P.A. 93-0002 (without regard to prior state minimum requirements),
      iii) That the actual amounts of member contributions and the actual cash outflows (benefit payments, refunds and administrative expenses) for each year prior to the valuation date were realized, and
      iv) That the hypothetical fund earned returns in each prior fiscal year equal to the rate of total return actually earned by the retirement fund in that year.
   b. The hypothetical asset values developed in a., above, will not exceed the actual assets of the fund.
   c. A projection of maximum contributions for each year of the GOB program will be performed each year, by reducing the contributions produced in a., above, by the respective amount of debt service allocated to the System for each year.
2. Calculation of the contribution with GOB proceeds
   a. The basic projection of State contributions from the valuation date through June 30, 2045, will be made, taking into account all assets of the System, including the GOB proceeds.
   b. State contribution rates (expressed as a percentage of covered pay), in the pattern required by the funding sections of the statutes, are calculated.
   c. In those projections, the dollars of state contributions which are added to assets each year during the GOB program are limited by the contribution maximum. Because the bonds are to be liquidated by the end of fiscal 2033, there is no contribution maximum thereafter.

Projection Methodology and Appropriation Requirements under P.A. 93-0002, P.A. 94-0004, P.A. 96-0043 and P.A. 100-0023

State Contributions under P.A. 94-0004

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/18-131:

(c) Notwithstanding any other provision of this Article, the total required State contribution for fiscal year 2006 is $29,189,400.

Notwithstanding any other provision of this Article, the total required State contribution for fiscal year 2007 is $35,236,800.

For each State fiscal year 2008 through 2010, the State contribution to the System, as a percentage of the applicable employee payroll, shall be increased in equal annual increments from the required State contribution for State fiscal year 2007, so that by State fiscal year 2011, the State is contributing at a rate otherwise required under this Section.

State Contributions under P.A. 96-0043

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/18-131:

(d) For purposes of determining the required State contribution to the System, the value of the System's assets shall be equal to the actuarial value of the System's assets, which shall be calculated as follows:

As of June 30, 2008, the actuarial value of the System's assets shall be equal to the market value of the assets as of that date. In determining the actuarial value of the System's assets for fiscal years after June 30, 2008, any actuarial gains or losses from investment return incurred in a fiscal year shall be recognized in equal annual amounts over the 5-year period following that fiscal year.

(e) For purposes of determining the required State contribution to the system for a particular year, the actuarial value of assets shall be assumed to earn a rate of return equal to the system's actuarially assumed rate of return.

State Contributions under P.A. 100-0023

Public Act ("P.A.") 100-0023, effective July 6, 2017, modified the State's funding policy to include smoothing State contribution rate increases or decreases due to changes in actuarial assumptions, including investment return assumptions, over a five-year period in equal annual amounts beginning in fiscal year 2018. In addition, changes in actuarial or investment assumptions that increased or decreased the State contribution rate in fiscal years 2014 through 2017 are to be smoothed over a five- year period in equal annual amounts, applying only to the portion of the five year phase-in that is applicable to fiscal years on and after 2018.

Phase-in of the Financial Impact of Assumption Changes

Following is a table with the recognition schedule for the phase-in of actuarial assumption changes required under Public Act 100-0023. The following actuarial assumption changes were made:

1. Beginning with the June 30, 2013, actuarial valuation, there were changes to the economic and demographic assumptions.
2. Beginning with the June 30, 2016, actuarial valuation, there were changes to the economic and demographic assumptions.
3. Beginning with the June 30, 2018, actuarial valuation, there were changes to the economic assumptions.

Valuation Year Ending June 30,	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Applicable Fiscal Year Ending June 30,	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	$ in Millions After Impact of GOB Proceeds									
Contribution Before Assumption Change										
(1) Contribution Dollar	$ 127.624	$ -	$ -	$ 132.782	$ -	$ 143.976				
(2) Contribution Rate	76.115%	0.000%	0.000%	82.414%	0.000%	91.511%				
Contribution After Assumption Change										
(3) Contribution Dollar	$ 133.982	$ -	$ -	$ 146.767	$ -	$ 145.223				
(4) Contribution Rate	79.961%	0.000%	0.000%	91.395%	0.000%	92.528%				
(5) Assumption Change Impact as a Percentage of Capped Payroll [(4) - (2)]	3.846%	0.000%	0.000%	8.981%	0.000%	1.017%				
(6) Assumption Change Impact Recognized This Year (5-year Recognition)										
(6a) From This Year	0.769%	0.000%	0.000%	1.796%	0.000%	0.203%				
(6b) From One Year Ago	0.000%	0.769%	0.000%	0.000%	1.796%	0.000%	0.203%			
(6c) From Two Years Ago	0.000%	0.000%	0.769%	0.000%	0.000%	1.796%	0.000%	0.203%		
(6d) From Three Years Ago	0.000%	0.000%	0.000%	0.769%	0.000%	0.000%	1.796%	0.000%	0.203%	
(6e) From Four Years Ago	0.000%	0.000%	0.000%	0.000%	0.770%	0.000%	0.000%	1.797%	0.000%	0.205%
(6f) Total Recognized Assumption Change Impact	0.769%	0.769%	0.769%	2.565%	2.566%	1.999%	1.999%	2.000%	0.203%	0.205%

SECTION H

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

GASB Statements Nos. 67 and 68 include a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.75 percent; the municipal bond rate is 3.62 percent; and the resulting Single Discount Rate is 6.60 percent.

The sponsor finances benefit using a funding policy defined in state statute. Sponsor contributions are calculated as a level percentage of capped payroll contributions needed to attain a funded status of 90 percent in 2045 under the Projected Unit Credit cost method. After 2045, the sponsor makes a contribution such that the funded status remains at 90 percent. The statutory contribution does not explicitly separate projected employer contributions between current and future plan members.

For purposes of developing the Single Discount Rate, we have projected actuarial liabilities on an Entry Age Normal basis, and compared against projected market value of assets. We have assumed the actuarial liability for future members will be fully financed, to the extent that assets are available, and any remaining asset will be assigned to current plan members. Based on this assignment of assets and employer contributions, plan assets assigned to current plan members are projected to be depleted by 2063.

The tables in this section provide background for the development of the Single Discount Rate.

The following tables show the assignment of assets and employer contributions and the projection of assets for current members as of the valuation date. Our projections assume the sponsor will make the required statutory contributions. The projections are based on the statutory funding projections performed during the June 30, 2018, actuarial valuation.

Total administrative expenses are assumed to increase at the same rate of projected capped payroll increases. Total administrative expenses are allocated between current and future hires by total payroll.

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

Projection of Funded Status and Assignment of Assets

PYE 6/30	Open Group EAN Actuarial Liability	Closed Group EAN Actuarial Liability	Future Member EAN Actuarial Liability	Open Group Assets	Future Member Assigned Assets	Closed Group Assigned Assets	Funded Ratio Current Members	Funded Ratio Future Members
	(a)	(b)	(c)=(a)-(b)	(d)	(e)=min[(c),(d)]	(f)=(d)-(e)	(g)=(f)/(b)	(h)=(e)/(c)
2018	$ 2,739,989,014	$ 2,739,989,014	$ -	$ 1,012,484,801	$ -	$ 1,012,484,801	36.95%	0.00%
2019	2,809,130,147	2,809,130,147	-	1,074,073,544	-	1,074,073,544	38.24%	0.00%
2020	2,873,271,259	2,871,475,728	1,795,531	1,135,223,551	1,795,531	1,133,428,020	39.47%	100.00%
2021	2,931,417,758	2,925,982,215	5,435,544	1,195,535,438	5,435,544	1,190,099,894	40.67%	100.00%
2022	2,984,189,815	2,973,013,824	11,175,991	1,254,956,636	11,175,991	1,243,780,645	41.84%	100.00%
2023	3,030,525,473	3,011,563,827	18,961,646	1,309,273,257	18,961,646	1,290,311,611	42.85%	100.00%
2024	3,070,727,059	3,041,637,802	29,089,258	1,359,594,152	29,089,258	1,330,504,894	43.74%	100.00%
2025	3,103,867,984	3,062,263,202	41,604,782	1,405,439,971	41,604,782	1,363,835,188	44.54%	100.00%
2026	3,130,494,965	3,073,590,763	56,904,202	1,447,350,914	56,904,202	1,390,446,712	45.24%	100.00%
2027	3,150,393,150	3,075,325,547	75,067,603	1,485,255,258	75,067,603	1,410,187,655	45.85%	100.00%
2028	3,163,923,640	3,067,987,835	95,935,805	1,519,012,495	95,935,805	1,423,076,690	46.38%	100.00%
2029	3,170,974,123	3,051,321,220	119,652,903	1,549,310,658	119,652,903	1,429,657,755	46.85%	100.00%
2030	3,171,530,641	3,025,201,557	146,329,084	1,576,148,194	146,329,084	1,429,819,110	47.26%	100.00%
2031	3,166,437,631	2,990,319,417	176,118,213	1,600,381,260	176,118,213	1,424,263,047	47.63%	100.00%
2032	3,155,088,643	2,946,101,610	208,987,033	1,623,286,967	208,987,033	1,414,299,934	48.01%	100.00%
2033	3,138,253,685	2,893,156,780	245,096,906	1,646,286,387	245,096,906	1,401,189,481	48.43%	100.00%
2034	3,116,316,337	2,831,891,372	284,424,965	1,673,170,138	284,424,965	1,388,745,173	49.04%	100.00%
2035	3,090,142,723	2,763,096,944	327,045,779	1,702,396,678	327,045,779	1,375,350,899	49.78%	100.00%
2036	3,060,056,520	2,687,143,296	372,913,224	1,735,006,336	372,913,224	1,362,093,112	50.69%	100.00%
2037	3,026,222,938	2,604,229,357	421,993,581	1,771,872,066	421,993,581	1,349,878,485	51.83%	100.00%
2038	2,989,493,495	2,515,212,643	474,280,852	1,814,296,307	474,280,852	1,340,015,455	53.28%	100.00%
2039	2,950,448,387	2,420,788,244	529,660,143	1,863,653,389	529,660,143	1,333,993,246	55.11%	100.00%
2040	2,909,610,826	2,321,554,593	588,056,233	1,921,272,471	588,056,233	1,333,216,238	57.43%	100.00%
2041	2,867,895,559	2,218,564,139	649,331,420	1,988,754,515	649,331,420	1,339,423,095	60.37%	100.00%
2042	2,825,728,119	2,112,393,224	713,334,896	2,067,516,441	713,334,896	1,354,181,545	64.11%	100.00%
2043	2,783,905,576	2,003,977,854	779,927,722	2,159,165,466	779,927,722	1,379,237,744	68.82%	100.00%
2044	2,743,034,621	1,894,090,869	848,943,752	2,265,315,383	848,943,752	1,416,371,631	74.78%	100.00%
2045	2,703,637,525	1,783,408,381	920,229,144	2,387,567,746	920,229,144	1,467,338,602	82.28%	100.00%
2046	2,666,417,575	1,672,771,323	993,646,252	2,352,865,286	993,646,252	1,359,219,034	81.26%	100.00%
2047	2,632,098,678	1,563,069,767	1,069,028,911	2,320,871,736	1,069,028,911	1,251,842,825	80.09%	100.00%
2048	2,601,081,047	1,454,873,481	1,146,207,566	2,291,835,151	1,146,207,566	1,145,627,585	78.74%	100.00%
2049	2,574,019,473	1,348,987,434	1,225,032,039	2,266,315,529	1,225,032,039	1,041,283,489	77.19%	100.00%
2050	2,551,266,602	1,245,916,756	1,305,349,846	2,244,632,697	1,305,349,846	939,282,851	75.39%	100.00%
2051	2,533,211,227	1,146,186,156	1,387,025,071	2,227,132,097	1,387,025,071	840,107,025	73.30%	100.00%
2052	2,520,238,344	1,050,297,738	1,469,940,607	2,214,155,349	1,469,940,607	744,214,742	70.86%	100.00%
2053	2,512,611,028	958,644,595	1,553,966,433	2,205,937,714	1,553,966,433	651,971,281	68.01%	100.00%
2054	2,510,565,039	871,592,608	1,638,972,431	2,202,690,681	1,638,972,431	563,718,250	64.68%	100.00%
2055	2,514,198,938	789,357,727	1,724,841,211	2,204,505,397	1,724,841,211	479,664,185	60.77%	100.00%
2056	2,523,534,714	712,058,193	1,811,476,521	2,211,404,886	1,811,476,521	399,928,365	56.17%	100.00%
2057	2,538,515,061	639,735,666	1,898,779,396	2,223,338,629	1,898,779,396	324,559,233	50.73%	100.00%
2058	2,559,107,518	572,428,004	1,986,679,513	2,240,277,185	1,986,679,513	253,597,671	44.30%	100.00%
2059	2,585,164,874	510,077,673	2,075,087,201	2,262,092,814	2,075,087,201	187,005,613	36.66%	100.00%
2060	2,616,543,278	452,612,239	2,163,931,039	2,288,658,248	2,163,931,039	124,727,209	27.56%	100.00%
2061	2,653,031,652	399,884,238	2,253,147,414	2,319,786,064	2,253,147,414	66,638,650	16.66%	100.00%
2062	2,694,400,980	351,716,710	2,342,684,270	2,355,269,928	2,342,684,270	12,585,657	3.58%	100.00%
2063	2,740,428,190	307,915,210	2,432,512,980	2,394,908,834	2,394,908,834	-	0.00%	98.45%
2064	2,790,892,797	268,288,934	2,522,603,863	2,438,504,651	2,438,504,651	-	0.00%	96.67%
2065	2,845,564,650	232,624,187	2,612,940,463	2,485,851,332	2,485,851,332	-	0.00%	95.14%
2066	2,904,206,116	200,692,392	2,703,513,724	2,536,733,794	2,536,733,794	-	0.00%	93.83%

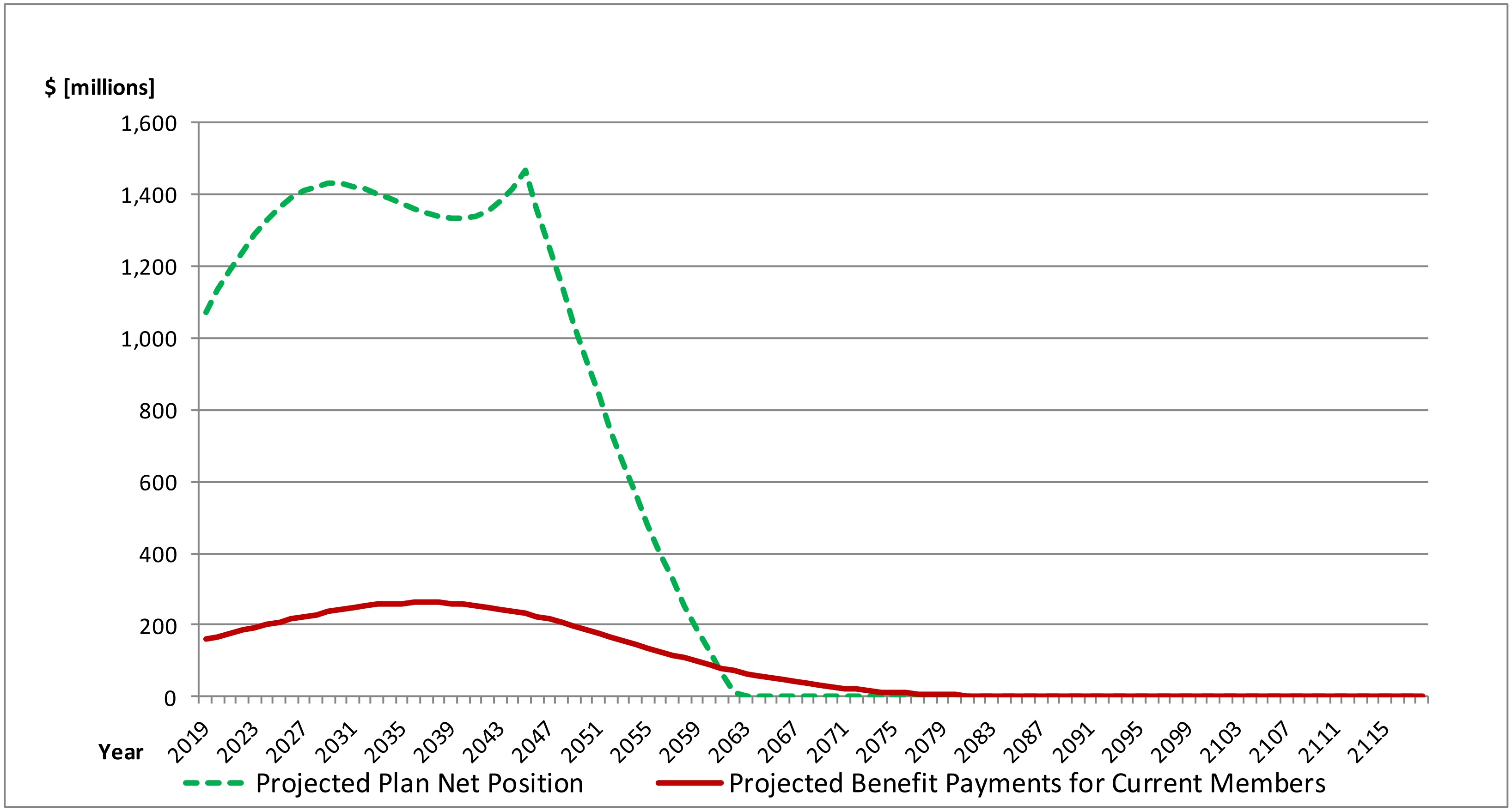
Current Member Projection of Assets and Assignment of Employer Contributions

PYE 6/30	Assets (boy)	Member Contributions	Administrative Expenses	Benefit Payments	Assigned Employer Contribution	Income on Cash Flow	Income on Assigned Contribution	Total Investment Income	Assets (eoy)
2019	$ 1,012,484,801	$ 13,648,568	$ 937,200	$ 159,717,329	$ 140,469,000	$ 63,462,286	$ 4,663,419	$ 68,125,704	$ 1,074,073,544
2020	1,074,073,544	12,647,815	874,056	167,782,894	143,286,040	67,320,630	4,756,941	72,077,571	1,133,428,020
2021	1,133,428,020	11,822,207	825,193	176,222,353	146,028,148	71,021,089	4,847,976	75,869,065	1,190,099,894
2022	1,190,099,894	10,790,486	773,009	184,246,876	148,434,762	74,547,516	4,927,873	79,475,389	1,243,780,645
2023	1,243,780,645	9,895,780	728,117	192,542,472	147,153,103	77,867,349	4,885,324	82,752,672	1,290,311,611
2024	1,290,311,611	9,097,718	678,624	200,532,527	146,717,769	80,718,076	4,870,871	85,588,947	1,330,504,894
2025	1,330,504,894	8,294,134	632,990	208,686,856	146,361,711	83,135,245	4,859,050	87,994,295	1,363,835,188
2026	1,363,835,188	7,503,314	582,561	216,260,601	145,995,462	85,109,019	4,846,891	89,955,910	1,390,446,712
2027	1,390,446,712	6,564,908	536,224	223,681,070	145,919,626	86,629,330	4,844,373	91,473,703	1,410,187,655
2028	1,410,187,655	5,515,882	492,305	230,316,732	145,638,957	87,708,178	4,835,055	92,543,234	1,423,076,690
2029	1,423,076,690	4,797,844	453,482	236,636,695	145,690,798	88,345,823	4,836,777	93,182,600	1,429,657,755
2030	1,429,657,755	4,234,514	414,714	242,550,666	145,485,953	88,576,292	4,829,976	93,406,268	1,429,819,110
2031	1,429,819,110	3,515,470	376,612	247,485,041	145,557,024	88,400,761	4,832,335	93,233,097	1,424,263,047
2032	1,424,263,047	3,238,010	343,396	252,311,600	146,725,369	87,857,382	4,871,123	92,728,505	1,414,299,934
2033	1,414,299,934	2,971,565	308,599	256,171,585	148,421,693	87,049,034	4,927,439	91,976,474	1,401,189,481
2034	1,401,189,481	2,733,819	277,087	259,186,460	153,144,062	86,057,141	5,084,217	91,141,358	1,388,745,173
2035	1,388,745,173	2,516,257	246,982	261,145,321	155,183,937	85,145,895	5,151,938	90,297,834	1,375,350,899
2036	1,375,350,899	2,284,290	220,612	262,341,439	157,592,818	84,195,246	5,231,911	89,427,157	1,362,093,112
2037	1,362,093,112	2,086,681	195,786	262,887,304	160,187,253	83,276,487	5,318,043	88,594,530	1,349,878,485
2038	1,349,878,485	1,885,524	170,965	262,353,443	162,903,756	82,463,869	5,408,228	87,872,097	1,340,015,455
2039	1,340,015,455	1,693,705	149,406	260,868,057	165,950,401	81,841,776	5,509,373	87,351,149	1,333,993,246
2040	1,333,993,246	1,499,114	129,651	258,505,456	169,232,734	81,507,908	5,618,343	87,126,251	1,333,216,238
2041	1,333,216,238	1,326,148	111,329	254,984,421	172,676,564	81,567,220	5,732,675	87,299,895	1,339,423,095
2042	1,339,423,095	1,167,126	96,097	250,698,386	176,405,630	82,123,701	5,856,476	87,980,177	1,354,181,545
2043	1,354,181,545	1,020,558	81,554	245,415,446	180,257,389	83,290,901	5,984,350	89,275,251	1,379,237,744
2044	1,379,237,744	890,658	69,349	239,315,683	184,327,980	85,180,793	6,119,489	91,300,282	1,416,371,631
2045	1,416,371,631	768,501	58,414	232,485,322	188,571,440	87,910,399	6,260,367	94,170,766	1,467,338,602
2046	1,467,338,602	653,079	48,021	224,872,620	23,759,296	91,599,916	788,783	92,388,699	1,359,219,034
2047	1,359,219,034	551,402	39,286	216,478,430	23,241,089	84,577,437	771,579	85,349,016	1,251,842,825
2048	1,251,842,825	462,407	32,287	207,611,527	22,594,849	77,621,193	750,124	78,371,317	1,145,627,585
2049	1,145,627,585	384,294	25,664	198,147,243	21,952,232	70,763,494	728,790	71,492,285	1,041,283,489
2050	1,041,283,489	317,413	20,840	188,352,022	21,304,138	64,043,398	707,274	64,750,673	939,282,851
2051	939,282,851	258,376	16,357	178,254,324	20,658,851	57,491,777	685,851	58,177,628	840,107,025
2052	840,107,025	206,233	12,475	167,923,253	20,033,340	51,138,787	665,085	51,803,872	744,214,742
2053	744,214,742	158,808	9,357	157,486,533	19,437,250	45,011,075	645,296	45,656,370	651,971,281
2054	651,971,281	123,717	6,978	147,005,324	18,877,327	39,131,520	626,707	39,758,226	563,718,250
2055	563,718,250	101,132	5,531	136,627,724	18,350,577	33,518,263	609,219	34,127,483	479,664,185
2056	479,664,185	78,821	4,323	126,452,978	17,867,766	28,181,704	593,190	28,774,894	399,928,365
2057	399,928,365	61,516	3,288	116,560,667	17,427,329	23,127,410	578,568	23,705,978	324,559,233
2058	324,559,233	41,363	2,211	106,969,330	17,044,960	18,357,782	565,874	18,923,656	253,597,671
2059	253,597,671	29,906	1,599	97,763,424	16,714,996	13,873,143	554,920	14,428,063	187,005,613
2060	187,005,613	19,787	1,058	88,958,036	16,444,763	9,670,190	545,948	10,216,139	124,727,209
2061	124,727,209	15,856	848	80,614,403	16,228,784	5,743,274	538,778	6,282,052	66,638,650
2062	66,638,650	11,303	604	72,750,667	16,070,241	2,083,221	533,515	2,616,735	12,585,657
2063	12,585,657	6,222	333	65,373,284	52,363,907	(1,320,595)	1,738,425	417,830	-
2064	-	1,386	74	58,469,432	58,468,120	(1,941,078)	1,941,078	-	-
2065	-	-	-	52,046,367	52,046,367	(1,727,883)	1,727,883	-	-
2066	-	-	-	46,103,346	46,103,346	(1,530,581)	1,530,581	-	-

Development of Single Discount Rate

PYE 6/30	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2019	$ 159,717,329	6.75%	$ 154,585,266	6.60%	$ 154,691,343
2020	167,782,894	6.75%	152,123,341	6.60%	152,436,718
2021	176,222,353	6.75%	149,672,249	6.60%	150,186,481
2022	184,246,876	6.75%	146,592,767	6.60%	147,298,363
2023	192,542,472	6.75%	143,506,333	6.60%	144,395,037
2024	200,532,527	6.75%	140,010,777	6.60%	141,071,242
2025	208,686,856	6.75%	136,490,949	6.60%	137,713,558
2026	216,260,601	6.75%	132,500,732	6.60%	133,871,135
2027	223,681,070	6.75%	128,381,434	6.60%	129,887,307
2028	230,316,732	6.75%	123,831,346	6.60%	125,455,848
2029	236,636,695	6.75%	119,184,372	6.60%	120,913,682
2030	242,550,666	6.75%	114,438,408	6.60%	116,258,246
2031	247,485,041	6.75%	109,383,146	6.60%	111,275,150
2032	252,311,600	6.75%	104,464,995	6.60%	106,417,828
2033	256,171,585	6.75%	99,356,582	6.60%	101,352,874
2034	259,186,460	6.75%	94,169,467	6.60%	96,193,419
2035	261,145,321	6.75%	88,881,662	6.60%	90,916,611
2036	262,341,439	6.75%	83,642,871	6.60%	85,675,338
2037	262,887,304	6.75%	78,517,012	6.60%	80,535,337
2038	262,353,443	6.75%	73,402,869	6.60%	75,393,095
2039	260,868,057	6.75%	68,372,158	6.60%	70,322,394
2040	258,505,456	6.75%	63,468,789	6.60%	65,368,783
2041	254,984,421	6.75%	58,645,712	6.60%	60,484,246
2042	250,698,386	6.75%	54,013,991	6.60%	55,783,801
2043	245,415,446	6.75%	49,532,328	6.60%	51,225,522
2044	239,315,683	6.75%	45,247,035	6.60%	46,857,984
2045	232,485,322	6.75%	41,176,234	6.60%	42,700,791
2046	224,872,620	6.75%	37,309,530	6.60%	38,744,039
2047	216,478,430	6.75%	33,645,729	6.60%	34,987,337
2048	207,611,527	6.75%	30,227,268	6.60%	31,475,719
2049	198,147,243	6.75%	27,025,117	6.60%	28,179,947
2050	188,352,022	6.75%	24,064,783	6.60%	25,127,562
2051	178,254,324	6.75%	21,334,568	6.60%	22,307,355
2052	167,923,253	6.75%	18,827,243	6.60%	19,712,731
2053	157,486,533	6.75%	16,540,607	6.60%	17,342,325
2054	147,005,324	6.75%	14,463,493	6.60%	15,185,353
2055	136,627,724	6.75%	12,592,474	6.60%	13,239,104
2056	126,452,978	6.75%	10,917,757	6.60%	11,494,148
2057	116,560,667	6.75%	9,427,326	6.60%	9,938,656
2058	106,969,330	6.75%	8,104,531	6.60%	8,555,844
2059	97,763,424	6.75%	6,938,684	6.60%	7,335,132
2060	88,958,036	6.75%	5,914,500	6.60%	6,261,014
2061	80,614,403	6.75%	5,020,854	6.60%	5,322,308
2062	72,750,667	6.75%	4,244,573	6.60%	4,505,597
2063	65,373,284	6.75%	3,572,971	6.60%	3,797,900
2064	58,469,432	3.62%	11,594,329	6.60%	3,186,399
2065	52,046,367	3.62%	9,960,097	6.60%	2,660,661
2066	46,103,346	3.62%	8,514,556	6.60%	2,210,851
2067	40,629,472	3.62%	7,241,477	6.60%	1,827,663
2068	35,611,767	3.62%	6,125,421	6.60%	1,502,715
2069	31,035,459	3.62%	5,151,776	6.60%	1,228,483
2070	26,885,360	3.62%	4,306,962	6.60%	998,285
2071	23,144,595	3.62%	3,578,172	6.60%	806,151
2072	19,795,625	3.62%	2,953,502	6.60%	646,791
2073	16,819,602	3.62%	2,421,811	6.60%	515,512
2074	14,196,197	3.62%	1,972,663	6.60%	408,153
2075	11,903,477	3.62%	1,596,288	6.60%	321,035
2076	9,918,258	3.62%	1,283,598	6.60%	250,924
2086	1,388,741	3.62%	125,944	6.60%	18,536
2096	434,374	3.62%	27,605	6.60%	3,059
2106	161,000	3.62%	7,170	6.60%	598
2111	64,608	3.62%	2,409	6.60%	174
2117	12,222	3.62%	368	6.60%	22
Total Present Value			**$ 3,115,629,117**		**$ 3,115,629,117**

Projection of Plan Net Position and Benefit Payments



SECTION I

GLOSSARY OF TERMS

Glossary of Terms

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms

Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be "open" (meaning, reset each year) or "closed" (the number of years remaining will decline each year).
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of employees that are provided with pensions through the pension plan.
Deferred Inflows and Outflows	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
Deferred Retirement Option Program (DROP)	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: 1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

Entry Age Actuarial Cost Method (EAN)
The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

Fiduciary Net Position
The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.

GASB
The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

Long-Term Expected Rate of Return
The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.

Money-Weighted Rate of Return
The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Multiple-Employer Defined Benefit Pension Plan
A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

Municipal Bond Rate
The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.

Net Pension Liability (NPL)
The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.

Non-Employer Contributing Entities
Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.

Normal Cost
The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

Glossary of Terms

Other Postemployment Benefits (OPEB)	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.